

SEQUENCE LISTING

<110> API Corporation

<120> A method for the production of optically active alcohols and
carboxylic acids

<130> A51051A

<160> 13

<210> 1

<211> 345

<212> PRT

<213> Issatchenkia scutulata

<400> 1

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35 40 45

Lys Lys Tyr Pro Asp Ala Asn Leu Thr Phe Glu Val Val Pro Asp Ile

50 55 60

Ser Thr Glu Asn Ala Phe Asp Asp Val Leu Lys Lys His Pro Glu Ile

65 70 75 80

Thr Ala Val Leu His Thr Ala Ser Pro Phe Ser Phe Gly Leu Asn Lys

85 90 95

Asp Leu Lys Glu Ala Tyr Leu Lys Pro Ala Val Asp Gly Thr Leu Asn

100 105 110

Ile Leu Lys Ala Ile Glu Lys Tyr Ala Pro Gln Val Thr Lys Val Val

115 120 125

Ile Thr Ser Ser Tyr Ala Ala Ile Met Thr Gly Asn Pro Ser His Val
 130 135 140
 His Thr Ser Glu Thr Trp Asn Pro Ile Asn Trp Glu Asn Asp Val Lys
 145 150 155 160
 Asn Glu Tyr Phe Ala Tyr Ile Ala Ser Lys Thr Tyr Ala Glu Lys Ala
 165 170 175
 Ala Arg Asp Phe Val Lys Glu His Lys Val Asn Phe Lys Leu Ala Thr
 180 185 190
 Val Asn Pro Pro Tyr Val Leu Gly Pro Gln Leu Phe Asp Phe Ser Val
 195 200 205
 Gly Pro Val Leu Asn Thr Ser Asn Gln Leu Ile Thr Asp Ala Thr Lys
 210 215 220
 Ile Asp Lys Asn Ser Thr Lys Pro Glu Leu Gly Thr Pro Ala Leu Ala
 225 230 235 240
 Val Asp Val Arg Asp Val Ala Ala Phe His Val Leu Pro Leu Glu Asp
 245 250 255
 Asp Lys Val Ala Ser Glu Arg Leu Phe Ile Val Ala Gly Pro Ala Val
 260 265 270
 Val Gln Thr Phe Leu Asn Ile Ile Asn Glu Asn Ile Pro Glu Leu Lys
 275 280 285
 Gly Lys Val Ala Leu Gly Asp Pro Ala Ser Glu Lys Glu Leu Ile Glu
 290 295 300
 Lys His Thr Asp Lys Tyr Asp Leu Thr Asn Leu His Asn Val Ile Gly
 305 310 315 320
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 325 330 335
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<212> DNA

<213> *Issatchenkia scutulata*

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caaccaatcc ttgatgcttt caagaaaaaa taccctgatg caaatgtgac ttttgaagtt 180
gtccctgaca tctccactga aaacgcattc gatgatgttt tgaagaagca tccagaaatt 240
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<213> *Saccharomyces cerevisiae*

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35 40 45
Asn Pro Asn Leu Thr Leu Glu Ile Val Pro Asp Ile Ser His Pro Asn
50 55 60
Ala Phe Asp Lys Val Leu Gln Lys Arg Gly Arg Glu Ile Arg Tyr Val
65 70 75 80
Leu His Thr Ala Ser Pro Phe His Tyr Asp Thr Thr Glu Tyr Glu Lys
85 90 95
Asp Leu Leu Ile Pro Ala Leu Glu Gly Thr Lys Asn Ile Leu Asn Ser
100 105 110
Ile Lys Lys Tyr Ala Ala Asp Thr Val Glu Arg Val Val Val Thr Ser
115 120 125
Ser Cys Thr Ala Ile Ile Thr Leu Ala Lys Met Asp Asp Pro Ser Val
130 135 140
Val Phe Thr Glu Glu Ser Trp Asn Glu Ala Thr Trp Glu Ser Cys Gln
145 150 155 160
Ile Asp Gly Ile Asn Ala Tyr Phe Ala Ser Lys Lys Phe Ala Glu Lys
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<211> 15

<212> PRT

<213> *Issatchenkia scutulata*

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<212> DNA

<213> Issatchenkia scutulata

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agttgtccct gacatctcca ctgaaaacgc attcgatgat gttttgaaga agcatccaga 180
aattactgct gtccttcaca cagcatctcc attctctttt ggtttgaaca aggatctgaa 240
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<213> Artificial

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<213> Issatchenkia scutulata

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Ser Asn Lys Thr Val Leu Val Thr Gly Ala Thr Gly Phe Ile Ala Leu

5

10

15

cac atc att gat aat tta ttg tct aag ggt tat tcc gtt att ggt aca 153

His Ile Ile Asp Asn Leu Leu Ser Lys Gly Tyr Ser Val Ile Gly Thr

20

25

30

gct aga tcc caa tct aaa tat caa cca atc ctt gat gct ttc aag aaa 201

Ala Arg Ser Gln Ser Lys Tyr Gln Pro Ile Leu Asp Ala Phe Lys Lys

35

40

45

aaa tac cct gat gca aat ttg act ttt gaa gtt gtc cct gac atc tcc 249

Lys Tyr Pro Asp Ala Asn Leu Thr Phe Glu Val Val Pro Asp Ile Ser

50

55

60

65

act gaa aac gca ttc gat gat gtt ttg aag aag cat cca gaa att act 297

Thr Glu Asn Ala Phe Asp Asp Val Leu Lys Lys His Pro Glu Ile Thr

70

75

80

gct gtc ctt cac aca gca tct cca ttc tct ttt ggt ttg aac aag gat 345

Ala Val Leu His Thr Ala Ser Pro Phe Ser Phe Gly Leu Asn Lys Asp	
85 90 95	
ctg aag gaa gca tat ttg aag cct gcc gtt gat ggt act ttg aat att	393
Leu Lys Glu Ala Tyr Leu Lys Pro Ala Val Asp Gly Thr Leu Asn Ile	
100 105 110	
ctc aag gca att gag aag tat gca cca cag gtt act aaa gtt gtt atc	441
Leu Lys Ala Ile Glu Lys Tyr Ala Pro Gln Val Thr Lys Val Val Ile	
115 120 125	
aca tct tct tat gct gca att atg aca ggt aat cca agt cat gtc cac	489
Thr Ser Ser Tyr Ala Ala Ile Met Thr Gly Asn Pro Ser His Val His	
130 135 140 145	
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Thr Ser Glu Thr Trp Asn Pro Ile Asn Trp Glu Asn Asp Val Lys Asn	
150 155 160	
gaa tac ttt gca tat att gcc tcc aag acg tat gct gaa aaa gct gcg	585
Glu Tyr Phe Ala Tyr Ile Ala Ser Lys Thr Tyr Ala Glu Lys Ala Ala	
165 170 175	
aga gat ttt gtc aag gag cat aag gtc aat ttc aag tta gca act gtt	633
Arg Asp Phe Val Lys Glu His Lys Val Asn Phe Lys Leu Ala Thr Val	
180 185 190	
aac cca cca tac gtt ctg ggt cca caa tta ttt gac ttc tca gtt ggt	681
Asn Pro Pro Tyr Val Leu Gly Pro Gln Leu Phe Asp Phe Ser Val Gly	
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cca gtc ttg aac act tcc aac caa ttg atc acg gat gcg act aaa att	729
Pro Val Leu Asn Thr Ser Asn Gln Leu Ile Thr Asp Ala Thr Lys Ile	
210 215 220 225	
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Asp Lys Asn Ser Thr Lys Pro Glu Leu Gly Thr Pro Ala Leu Ala Val
 230 235 240
 gat gtt aga gat gtt gct gcg ttc cat gtt tta cca ttg gaa gat gat 825
 Asp Val Arg Asp Val Ala Ala Phe His Val Leu Pro Leu Glu Asp Asp
 245 250 255
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 260 265 270
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 Gln Thr Phe Leu Asn Ile Ile Asn Glu Asn Ile Pro Glu Leu Lys Gly
 275 280 285
 aag gtt gcc cta gga gat cca gct tca gag aag gag ttg att gaa aag 969
 Lys Val Ala Leu Gly Asp Pro Ala Ser Glu Lys Glu Leu Ile Glu Lys
 290 295 300 305
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 His Thr Asp Lys Tyr Asp Leu Thr Asn Leu His Asn Val Ile Gly Lys
 310 315 320
 tat gat ttc att cca gtt gaa aag tcc gtt gtc gac gtc tta gaa caa 1065
 Tyr Asp Phe Ile Pro Val Glu Lys Ser Val Val Asp Val Leu Glu Gln
 325 330 335
 tat tac aaa atc aat aaa att gat tag tttatataga aaattttata 1112
 Tyr Tyr Lys Ile Asn Lys Ile Asp
 340 345
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 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1212
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<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 12

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<210> 13

<211> 38

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 13

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